

CLAIMS

What is claimed is:

1. A medical robotic system, comprising:
2 a first medical device;
3 a first input device that can be moved a first input
4 distance to move said first medical device;
5 a second input device that can be moved a second input
6 distance to move said first medical device; and,
7 a feedback device that provides an indication of a
8 difference between the first and second input distances.

1 2. The system of claim 1, wherein said feedback device
3 provides a force feedback.

1 2 3. The system of claim 1, wherein said feedback device
4 includes a visual feedback.

1 2 4. The system of claim 2, wherein said force feedback
3 is applied to said first input device.

1 5. The system of claim 4, wherein said force feedback
2 is applied to said second input device.

Sub A
1 6. The system of claim 1, wherein said first input
2 device includes a ^{first} handle and said second input device
3 includes a ^{second} handle.

Sub A
1 7. The system of claim 1, further comprising a
2 communication interface that couples said first and second
3 input devices to said first medical device.

Sub A
1 8. The system of claim 7, wherein said first medical
2 device includes a robotic arm coupled to a medical
3 instrument.

1 9. The system of claim 1, wherein said first input
2 device includes a switch that allows said first input
3 device to assume sole control of said first medical device.

Sub A
1 10. The system of claim 1, further comprising an
2 arbitrator that is coupled to said first medical device,
3 said first input device and said second input device.

1 11. A medical robotic system, comprising:
2 a first medical device;
3 first input means that can be moved a first input
4 distance for moving said first medical device;
5 second input means that can be moved a second input
6 distance for moving said first medical device; and,
7 feedback means for providing an indication of a
8 difference between the first and second input distances.

1 12. The system of claim 11, wherein said feedback
2 means provides a force feedback.

1 13. The system of claim 11, wherein said feedback
2 means includes a visual feedback.

1 14. The system of claim 12, wherein said force
2 feedback is applied to said first input means.

1 15. The system of claim 14, wherein said force
2 feedback is applied to said second input means.

1 16. The system of claim 11, wherein said first input
2 means includes a handle and said second input means
3 includes a handle.

1 17. The system of claim 11, further comprising a
2 communication means for remotely coupling said first and
3 second input devices to said first medical device.

1 18. The system of claim 17, wherein said first medical
device includes a robotic arm coupled to a medical
instrument.

1 19. The system of claim 11, wherein said first input
means includes a switch that allows said first input means
to assume sole control of said first medical device.

1 20. The system of claim 11, further comprising
arbitrator means for arbitrating control of said first
2 medical device between said first input means and said
3 second input means.

1 21. A method for controlling a first medical device,
2 comprising:

3 moving a first input device a first input distance to
4 move a first medical device;
5 moving a second input device a second input distance to
6 move the first medical instrument; and,
7 generating an indication of a difference between the
8 first and second input distances.

1 22. The method of claim 21, wherein a force is
2 feedback to the second input device.

3 23. The method of claim 22, further comprising
4 transmitting force feedback data from the first medical
5 device to the second input device through a communication
6 port.

7 24. A medical robotic system, comprising:
8
1 a first medical device;
2
3 a controller coupled to said first medical device;
4
5 a first pair of handles coupled to said controller to
6 control said first medical device; and,
7
8 a second pair of handles coupled to said controller to
control said first medical device simultaneously with said
first pair of handles.

1 25. The system of claim 24, wherein said second pair
2 of handles receives a force feedback as a function of
3 movement of said first pair of handles.

1 26. The system of claim 25, wherein said force
2 feedback is variable.

1 27. The system of claim 24, wherein said first pair of
2 handles include a switch that allows said first pair of
3 handles to assume sole control of at least one medical
4 device.

1 28. The system of claim 24, further comprising a
2 network port to allow data to be transferred from said
3 first pair of handles to said first medical device.

1 29. A medical robotic system, comprising:
2 a first medical device;
3 a controller coupled to said first medical device;
4 first handle means for controlling said first medical
5 device; and,

6 second handle means for controlling said first medical
7 device simultaneously with said first pair of handles.

1 30. The system of claim 29, wherein said second handle
2 means receives a force feedback as a function of movement
3 of said first handle means.

1 31. The system of claim 30, wherein said force
2 feedback is variable.

32. The system of claim 29, wherein said first handle
means include a switch that allows said first handle means
to assume sole control of at least one medical device.

33. The system of claim 29, further comprising a
network port to allow data to be transferred from said
first handle means to said first, second and third medical
devices.

1 34. A method for controlling a plurality of medical
2 devices, comprising:

3 moving a first handle;

4 moving a first medical device in response to movement
5 of said first handle; and,
6 moving a second handle simultaneously with said first
7 handle to move said first medical device.

1 35. The method of claim 34, wherein the first handle
2 assumes sole control of the first medical device.